

CHAPTER 11 HYDROLOGY AND WATER QUALITY

11.1 SETTING

Regional Surface Water Features

DeWitt Center is located within the Sacramento River Basin, which is bound by the Sierra Nevada Mountains to the east, the Coast Ranges to the west, the Cascade Range and Trinity Mountains to the north, and the Delta-Central Sierra area to the south. The Sacramento River is the principal stream in the basin. Its major tributaries are the Pit and McCloud rivers, which join the Sacramento River from the north, and the Feather and American rivers, which are tributaries from the east.

The DeWitt Center Study Area comprises 180 acres, located between Atwood and Bell Roads approximately one-half mile west of State Route (SR) 49. The site is located on a ridge at elevation 1,400 feet above mean sea level. The project area is shown in *Figure 2-1* in **CHAPTER 2, PROJECT DESCRIPTION**. The northeasterly 33-acre portion of the DeWitt Center Study Area drains toward SR 49 into the Rock Creek watershed, and the remaining 146.7 acres drain toward Atwood Road into the North Ravine watershed, as shown on *Figure 11-1*. All storm water that flows from the site ultimately flows into the Sacramento River (Planning Concepts 1996).

The Rock Creek watershed is within the Dry Creek watershed, north of the project area. (Please note that a creek in western Placer County is also named Dry Creek. That creek is not associated with the Dry Creek that occurs north of DeWitt Center.) Rock Creek, a major tributary to Dry Creek, flows from east to west and drains an area of approximately 4.3 square miles. Dry Creek has a drainage area of 15.5 square miles above the confluence with Orr Creek. Rock Creek Lake is located to the northeast of DeWitt Center, and is used primarily for storing water and diverting it to the Wise Canal, which is owned by Pacific Gas and Electric Company (PG&E) (Montgomery 1992a).

Auburn Ravine is a perennial stream originating just west of the City of Auburn, approximately 10 miles east of the project area. North Ravine originates approximately one-half mile south of DeWitt and is a tributary to Auburn Ravine that drains the eastern portion of the Auburn Ravine watershed. North Ravine generally flows from north to south, and drains an area of 4.6 square miles above its confluence with Auburn Ravine. The Auburn Ravine drains an area of 10.8 square miles below the confluence with North Ravine. The total drainage area of Auburn Ravine is 79 square miles. Flows are seasonal and variable. Diversions from the Nevada Irrigation District (NID) and PG&E, and discharges from the City of Auburn wastewater treatment plant, contribute to flows in the summer, when the creek would otherwise be dry under average to drought conditions (De Wante and Stowell/QUAD 1992). Auburn Ravine ultimately flows into the East Side Canal, which, in turn, empties into the Cross Canal approximately one mile east of SR 99. The Cross Canal empties into the Sacramento River approximately 10 miles north of Sacramento and about one mile below the confluence of the Feather River and the Sacramento River (Montgomery 1992a).

Historical streamflow data are not available for Rock Creek or North Ravine. For Auburn Ravine, the City of Auburn conducted a hydrologic analysis as part of the *Environmental Impact Report* (EIR) for the Auburn Wastewater Facility Plan (City of Auburn 1997, as cited in Eco:Logic

Engineering, Inc. 1999). In that analysis, natural flows for Auburn Ravine were estimated from natural streamflow data for Deer Creek, a tributary of the Cosumnes River located south of Auburn Ravine. The estimated natural mean monthly streamflows for Auburn Ravine near SR 65 in Lincoln vary from a high of 70.6 cubic feet per second (cfs) in January to no flow in August and September (City of Lincoln et al., 1998). However, flows in Auburn Ravine are influenced by several upstream agencies. Based on regulated streamflow data from the NID's gauge in Auburn Ravine below SR 65 for the period 1985 through 1997, average regulated streamflows vary from 117 cfs in January to 30 cfs in October (City of Lincoln et al. 1998).

An extensive network of canals and reservoirs supplies surface water for domestic use throughout the surrounding area, to the City of Auburn, and also to the residential and agricultural regions of the County to the south and west of DeWitt Center. The canals are owned and operated by three different agencies: PG&E, Placer County Water Agency (PCWA), and NID. The source of the water for most of the canals is the Bear River and Lake Combie north of the DeWitt Center Study Area. The canals are primarily open rather than encased, allowing the inflow of runoff and surface water. In general, most of the canals transport the water from north to south, with many side diversions and spills. Some of the canals are used solely for water supply purposes (municipal and agricultural), whereas others are also used for power generation (Placer County 1994).

The primary canal operated by NID in the vicinity of the project area is the Combie-Ophir Canal. This canal is used exclusively for water supply (agriculture and domestic) and is not encased except for a short portion (approximately 900 feet along Bell Road, just north of the area). It originates at Lake Combie located on the Bear River approximately six miles northeast of the area. The canal generally runs from north to south. Normal flow capacity of this canal is approximately 40 cfs (Montgomery 1992a).

The Combie-Ophir Canal provides water to the Combie 3 Canal, which runs from north to south adjacent to the eastern edge of the DeWitt Center Study Area. This canal is frequently referred to as the Ophir Canal or the Kemper Canal. Based on personal communications with NID, this EIR refers to the canal as Combie 3 (pers. comm. Smith). The flow in the Combie 3 Canal is supplemented in the summer months with water from the Fiddler Green Canal, which runs parallel to PG&E's Wise Canal. The Combie 3 Canal runs south to Atwood Road, where it passes through a buried pipe that runs south under Atwood Road and then through the neighborhoods located south of DeWitt Center. Farther south, at the intersection of Bean and Kemper roads, the canal is no longer enclosed. The water from the Combie 3 Canal is used for irrigation purposes south of Atwood Road (Curry 2002). NID also releases water from the Combie-Ophir Canal to a tributary of Orr Creek; this water is later diverted to Gold Hill Canal via a small reservoir on Orr Creek (Placer County 1994).

PCWA also operates and maintains canals in the vicinity of the site. The Fiddler Green Canal extends from north to south and is located west and southeast of the site. As with the NID canals, this canal is operated solely for water supply purposes, and only small portions of it have been encased (Placer County 1994).

Figure 11-1

PG&E operates and maintains canals in the vicinity of the site primarily for the purpose of water supply and power generation. One of these canals is the Wise Canal, which carries water from north to south. The Wise Canal is the largest canal in the study area (with a capacity of more than 500 cfs) and is not encased except in short segments where the water is diverted into penstocks (Placer County 1994). The Wise Canal receives water from the Bear River Canal, which releases water to Halsey Forebay. This water is then released via a penstock to Halsey Powerhouse and Halsey Afterbay (located on upper Dry Creek). The water is then diverted from the Afterbay to the Wise Canal. This segment of the canal transports water from the upper Dry Creek watershed to the Rock Creek watershed, where the water is released into Rock Creek Lake. Water is then diverted from Rock Creek Lake into a lower section of Wise Canal passing into the Auburn Ravine watershed, and ending up in the Wise Forebay. At the Wise Forebay, the canal water enters into a penstock and is carried to Wise Powerhouse located along the Auburn Ravine. From here, canal water is released both to Auburn Ravine and South Canal (Placer County 1994).

The Wise Canal differs from other smaller water supply canals in the vicinity of the site in that it has no spill points except for those into reservoirs. An emergency spillway for the canal is located at the Wise Forebay and would spill to a small tributary of the North Ravine. However, this is designed to be used only in the event of penstock failure and has not been used to date (Placer County 1994).

Site-Specific Surface Water Features

Figure 11-2 shows surface water features at DeWitt Center. In general, surface ditches and swales convey most of the storm water runoff from the site, with some culverts at street crossings. Several old storm drainpipes were constructed in the 1940s as part of the original hospital construction; these are located in the southern portion of the Study Area. This old system consists primarily of 8-inch clay drainpipes connected to catch basins. Only limited detailed topographic information is available for the Study Area, and none is available for the areas where these old storm drains are located; therefore, the areas contributing runoff to each drain inlet are unknown. The system would be expected to intercept runoff from the immediate vicinity and as bound by nearby buildings and/or roads. The flow capacity of this old system is unknown, but due to its age, it would be expected to be under-designed with respect to current design requirements.

In recent years, storm water improvements have been implemented in the Study Area in conjunction with specific projects, such as the Main Jail Expansion, Juvenile Hall, and Finance Administration Building projects. These improvements include a detention basin between the jail and Atwood Road constructed in 1996 (herein referred to as Atwood Road Detention Pond), and a basin at the southwest corner of the Main Jail constructed in 2001 (herein referred to as DeWitt Center Detention Basin). Additional storm water drains have been installed in the vicinity of the Juvenile Hall and the Finance Administration Building to convey runoff to the basins and from the detention basins to culverts under Atwood Road. Other storm drain systems installed in recent years include: (1) a storm drain system that drains the Finance Administration Building and parking lot site located at the northeast corner of Richardson Drive and "B" Avenue, and (2) a drain system in First Street that drains to the east of the Study Area, with a portion of this system passing under the Combie 3 Canal. Runoff that exceeds the capacity of this system sheetflows into the canal (Planning Concepts 1996).

Figure 11-2

As part of the Main Jail expansion project, storm water improvements included creation of the DeWitt Center Detention Basin. The purpose of this basin is to accommodate increases in stormwater runoff due to an increase in impervious areas as a result of the Main Jail expansion. This basin, which is located approximately 40 feet west of the Main Jail, has a storage capacity of 0.69 acre-feet and was designed to expand to accommodate runoff from the future development at DeWitt Center. This basin receives storm water runoff from a 45-acre area northwest of the Main Jail that is conveyed to the basin via a ditch and 42-inch-diameter culvert. Direct runoff from a 3-acre area adjacent to the basin is also collected in the basin. The basin's outlet pipe is currently a 12-inch diameter polyvinyl chloride (PVC) pipe that conveys the discharge to the culverts under Atwood Road, which also drain the existing Atwood Road Detention Pond.

The Atwood Road Detention Pond is located north of Atwood Road, west of the Main Jail entrance, and south of the Main Jail. This pond was constructed in 1996 to accommodate increases in stormwater runoff due to construction of the Finance Administration Building and Juvenile Hall. A 48-inch culvert that passes under the Main Jail conveys stormwater runoff from an 8-acre area north of the Main Jail into the Atwood Road Detention Pond, as indicated on *Figure 11-2*. As part of the plans for the Main Jail expansion project, this pond was to be enlarged. However, this pond was subsequently determined to be a wetland under the jurisdiction of the U.S. Army Corps of Engineers and will no longer be expanded.

The Atwood Road Detention Pond also receives stormwater runoff from the 9 acres immediately adjacent to the pond, as shown on *Figure 11-2*. The total area contributing runoff into this pond is 67 acres. The pond provides 1.21 acre-feet of storage at elevation 1,390.7 feet, which is the elevation at which Atwood Road begins to be overtopped. Discharge from the pond is conveyed by a 30-inch corrugated steel culvert that passes under Atwood Road and then flows southwest towards North Ravine via a natural drainage.

An abandoned sewer pond is located in the western portion of DeWitt Center. A dam constructed across a natural swale created the pond. The dam crest is at elevation 1,385.0 feet. This pond is maintained in a "full" condition by constant in-flow from NID's Combie-Ophir Canal (AR Associates 1995). The pond has a 2.3-acre surface area at a fixed water surface elevation of approximately 1,378.1 feet (Planning Concepts 1996). Approximately 10 acre-feet of storage is available between elevations 1,378 and 1,382 feet. The outlet structure is an approximately 4-foot-square concrete box with an outlet pipe at the bottom, which passes beneath the dam. A small pond exists south of this outlet pipe. Overflow from the abandoned sewer pond flows into this smaller pond, which outflows through a culvert under Atwood Road. Drainage from these ponds then flows south towards North Ravine (Planning Concepts 1996).

An abandoned water treatment pond (or square pond), which was historically used to store water for the abandoned DeWitt Center Water Treatment Plant, is located near the southeast corner of DeWitt Center, adjacent to the eastern Study Area boundary. Storage capacity provided by this pond was approximately 3.5 million gallons. This pond formerly received water from the Combie 3 Canal but is no longer in use.

A ditch/culvert system runs along the southern edge of the Study Area boundary adjacent to Atwood Road. This ditch/culvert system conveys stormwater runoff from the area, beginning

west of the First Street entrance. Between the Richardson Road and Main Jail entrances, the drainage is conveyed under Atwood Road to a ± 2 acre open water pond south of Atwood Road. This pond is herein referred to as Atwood Pond. This pond has an overflow weir on its western edge, such that overflow will be discharged into the same natural drainage that the DeWitt Center Detention Basin and Atwood Road Detention Pond discharge into.

Atwood Pond is privately owned and maintained. This pond was originally a recreational pool for DeWitt Center. The pond receives storm water runoff from approximately 44 acres of the project area via a ditch that runs along Atwood Road and then through a 24-inch corrugated steel culvert that runs under Atwood Road just east of the pond. In addition, 7.5 acres located on the south side of Atwood Road drain into the pond via a roadside ditch (Planning Concepts 1996).

A large portion of the DeWitt Center Study Area is covered with impervious surfaces, i.e., pavement, buildings, and sidewalks (Planning Concepts 1996). Site soils are of the Auburn Complex and fall into Hydrologic Soils Group C/D. These soils exhibit low to medium permeability rates. Site slopes range between 1 and 10 percent. Most of the undeveloped land lies in the southwestern portion of the site around the Main Jail facility and onsite abandoned sewer pond.

Regional Flooding

Regional and local floods occur from October through April. The floods are generally caused by a combination of prolonged rainfall leading to soil saturation and a short period of intense precipitation associated with frontal convection or severe thunderstorms.

The Placer County Flood Control and Water Conservation District has sponsored three studies that reviewed the areas drained by the Auburn Ravine, Coon and Pleasant Grove creeks, and the Dry Creek located in western Placer County. These creeks and their tributaries flow through and drain western Placer County, southeastern Sutter County, and portions of Sacramento County. The studies are:

- Auburn Ravine, Coon, and Pleasant Grove Creeks Flood Mitigation, Volumes 1 and 2 (CH2M Hill, 1993);
- Placer/Sutter County Joint Flood Study, Auburn Ravine, Coon and Pleasant Grove Creeks (CH2M Hill, 1994); and
- The Placer County Flood Control and Water Conservation District and Sacramento County Water Agency Final Report, Dry Creek Watershed Flood Control Plan (James M. Montgomery, 1992b).

These studies were prepared to respond to the concern over potential increases in flooding and to develop potential mitigation for impacts associated with development.

Planned land uses within Placer County allow for industrial, commercial, and residential development that would normally increase flood flows and volumes. An extensive area upstream of the Cross Canal, in eastern Sutter County and western Placer County, has a history of periodically flooding, as does the western Placer County Dry Creek through and downstream of the City of Roseville.

While development can have large impacts on peak flows and volumes, hydrologic modeling of the watershed indicated that “existing” upstream development in the Auburn Ravine/Pleasant Grove Creek watersheds could result in approximately one-half inch increase in flooding depth in the lower (western) watershed during the 100-year flood and that existing flooding problems in the western portion of the watershed would not be significantly reduced, even if all existing development could be removed from the watershed (CH2M Hill 1993).

Land use projections based on General and Specific Plans in Placer County show that approximately 10 percent of the area developing in the future would have impervious surfaces. Based upon HEC-1 modeling, the CH2M Hill analysis determined that the change in watershed land use from existing conditions to future conditions would result in an approximately 0.12-foot increase in flood stage upstream of the Cross Canal during the 24-hour 100-year storm. The corresponding increase for the 8-day 100-year storm would be approximately 0.08 foot.

In support of the *Auburn/Bowman Community Plan Environmental Impact Report* (Planning Concepts 1994), James M. Montgomery conducted a drainage study of the region to provide Placer County with information on existing and future flood and water quality issues. The flood of February 1986 caused the most severe flooding damage to date in the region. Most of the flooding problems were due to inadequate bridges and culverts, which resulted in overtopping of these structures. However, at several locations in the Community Plan area, flooding of structures did occur in the floodplains. The *Auburn/Bowman Community Plan Environmental Impact Report* provides a summary of the known existing problem areas due to flooding. The problem areas identified for the Rock Creek and North Ravine watersheds include:

North Ravine

- Vada Ranch Road at North Ravine
- Calnick Lane at North Ravine
- Warren Way at North Ravine
- Millertown Road at North Ravine
- Mt. Vernon Road at North Ravine
- Harris Road at North Ravine
- Vista Road at North Ravine
- Kemper Road at North Ravine
- Millertown Road at North Ravine Tributary
- Mt. Vernon Road at North Ravine Tributary
- Bar Ranch Road at North Ravine Tributary

Rock Creek Watershed

- Sherwood Way at Rock Creek
- Highway 49 Bridge at Rock Creek
- Joeger Road and Rock Creek
- Richardson Drive at Rock Creek
- Rock Creek Road at Rock Creek
- New Airport Road at Rock Creek
- New Airport Road at Rock Creek Tributary

AR Associates conducted a drainage study for the Main Jail expansion project (NFA 2001). With creation of the 0.69 acre-foot DeWitt Center Detention Basin described above, the study indicated that post-project flows would be the same as or below pre-project flows. The estimated peak flows are summarized in Table 11.1. However, despite the reduced flows, the study indicates that Atwood Road, with an elevation of 1,390.7 feet, will be overtopped during a 100-year flood event. As shown on Table 11.1, the estimated water surface elevation at Atwood Road is 1,390.95 feet with the 0.55 acre-foot basin, or approximately 0.25 feet above the road elevation.

Table 11.1
Estimated Peak Flows and 100-Year Maximum Water
Surface Elevation at Atwood Road Detention Pond
(Jail Expansion Project)

	2-Year Peak Flow (cfs)	10-Year Peak Flow (cfs)	25-Year Peak Flow (cfs)	100-Year Peak Flow (cfs)	100-Year Maximum Water Surface Elevation (feet)
Pre-Jail/House 4 Expansion Project	29	46	54	105	1,391.01
Current ¹	28	46	53	98	1,390.95

Notes:

1 The current conditions shown in the table represent the conditions after the Jail Expansion project (i.e., Housing Unit 4) has been completed. This corresponds to the "temporary pond" conditions presented in the drainage study.

Source: North Fork Associates, 2001

DeWitt Center is not located within the 100-year flood plain. However, peak flow conditions currently result in flooding at Atwood Road. The site does not lie within nor will it affect a sole source aquifer recharge area as designated by the U.S. Environmental Protection Agency (NFA 2001).

Surface Water Quality

The water quality in all nearby streams is of concern for wildlife and fisheries as well as for other downstream uses. Stormwater runoff from rural and urban areas may contain excessive levels of pollutants (i.e., pesticides, herbicides, hydrocarbons) that are toxic to fisheries and other aquatic life in the streams. In addition, the water drained from the site eventually reaches the Sacramento River, a primary source of water for the City of Sacramento as well as for the Sacramento-San Joaquin Delta, which has numerous water uses such as water supply, recreation, fisheries, and wildlife habitats (Montgomery 1992a).

Water quality degradation from non-point source pollutants is primarily the result of stormwater runoff carrying pollutants from the land surface to the receiving waters. The types of pollutants that may be transported to the receiving waters depend on the land use and the associated land use activities. In the vicinity of DeWitt Center, the urban/commercial uses that may contribute to non-point source pollution include automobiles (tires, oil leaks, brake linings, catalytic converters), the improper use and disposal of chemicals (pesticides, fertilizers, herbicides, paints, paint thinners, solvents, petroleum chemicals), erosion of unprotected surfaces, structural surfaces (street pavement, galvanized pipes, roofing materials, wood preservatives), and solid waste (litter and debris, vegetative matter, pet droppings) (Montgomery 1992a).

Storm runoff originating in the majority of the Study Area drains to North Ravine, then into Auburn Ravine and then into the western Placer County Dry Creek. Storm runoff originating in the northeastern portion of the Study Area drains to the Rock Creek watershed. These surface waters are tributary to the Sacramento River. Key beneficial uses of the receiving waters are designated as municipal, domestic, and agricultural supply, recreation, and freshwater habitat (Central Valley Regional Water Quality Control Board 1998).

Groundwater Supply

As discussed in the 1994 EIR (Planning Concepts 1994), there are no significant sources of groundwater in the vicinity of the project area due to the subsurface conditions. The sedimentary rock unit is of insufficient extent to provide a groundwater resource in the area and the volcanic rock unit is impermeable and contains no groundwater.

11.2 REGULATORY FRAMEWORK

State and Federal Plans, Programs and Policies

The U.S. Army Corps of Engineers (Corps) regulates the placement of fill or dredged materials that affect waters of the United States, which include stream courses and jurisdictional wetlands. The Corps regulates these activities under the authority of Section 404 of the Clean Water Act. The Corps would regulate any development in the vicinity of the project area that affects jurisdictional wetlands.

The Placer County Flood Control and Water Conservation District formulates regional strategies for flood control management. In the Flood Control and Water Conservation District Stormwater Management Manual, policy, guidelines, and specific development criteria are presented for stormwater management. The main objective of the Flood Control and Water Conservation District is to reduce the effects of flooding through best management practices (BMP). The manual addresses the following elements, which must be included in a stormwater management project:

- Drainage structure design - The storm drainage shall be planned and designed so that no damages occur to structures or improvements during the 100-year event and no inundation of private property occurs during the 10-year event;
- Use of detention basins to maintain downstream channel flow rates at 90 percent of the channel capacity;
- Floodplain Management Plan;
- System Monitoring Program; and
- Operations and Maintenance Program.

Surface water quality is regulated by the National Pollutant Discharge Elimination System (NPDES), developed by the U.S. Environmental Protection Agency (EPA) in accordance with Section 303 of the Clean Water Act. In the State of California, the State Water Resources Control Board administers the NPDES program, with implementation and enforcement by the Regional Water Quality Control Board. The NPDES program, designed to protect surface water quality, is applicable to all discharges to waters of the United States, including storm water discharges associated with municipal drainage systems, construction activities, industrial operations, and "point sources" (such as wastewater treatment plant discharges and other direct discharges to water bodies). In April 2003, the State Water Resources Control Board adopted a General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer Systems (MS4s) to provide NPDES permit coverage for smaller municipalities. Placer County is designated within this NPDES Phase II General Permit. In general, the NPDES permit program focuses on controlling, or reducing surface water impacts.

The Central Valley Regional Water Quality Control Board also issues NPDES permits for construction activities involving disturbance of one acre or more. The conditions of the State's General Permit for Storm Water Discharges associated with construction activities require development and implementation of a Storm Water Pollution Prevention Plan that must address the following:

- Plans for implementation of structural and operational BMPs to prevent and control impacts to surface water;
- Inspection and maintenance of BMPs throughout all phases of construction;
- Monitoring of runoff quality during all phases of construction; and
- A plan for preventing and controlling post-construction impacts to runoff quality.

Auburn/Bowman Community Plan

The *Auburn/Bowman Community Plan* contains policies governing development in the project vicinity. Below is a list of hydrology and water quality goals and policies, found in the Environmental Resources Management Element, that are applicable to the DeWitt Government Center Facility Plan (2003 - 2010) project.

Goals IV.B.3.a

1. Conserve and enhance, and protect from degradation, surface and ground water supplies and adequately plan for the development and protection of these resources for future generations
 2. Safeguard and maintain natural waterways to ensure water quality, flora and fauna species diversity and unique wildlife habitat preservation.
 3. Reduce flood hazards both on-site and downstream.
- B.3.b.(1) Improve water quality by eliminating existing water pollution sources and by discouraging activities which include the use of hazardous materials around wetland and groundwater recharge areas.
- B.3.b.(2) Preserve and enhance watersheds, particularly those adjacent to domestic water supply sources. Where urban or suburban development is permitted within such watersheds, require that urban runoff be adequately treated before being released.
- B.3.b.(6) Promote water conservation through development standards, building requirements, landscape design guidelines, and other applicable policies and programs.
- B.3.b.(15) Continue to implement and enforce the *Grading Ordinance* and *Flood Damage Prevention Ordinance*.
- B.3.b.(16) Ensure that new development storm drainage systems are designed in conformance with the Placer County Flood Control and Water Conservation District's *Stormwater Management Manual* and the County *Land Development Manual*.

- B.3.b.(17) Require new development to detain increases in peak stormwater runoff, or to pay appropriate in-lieu fees for compensating improvements, in all areas recommended for local detention in the *Auburn/Bowman Community Plan Hydrology Study* (Appendix D of the Plan's Background Report).
- B.3.b.(18) Reduce the negative impacts on water quality resulting from urban runoff for all commercial, industrial, and residential projects by treating such runoff before it enters intermittent or permanent streams. All feasible mitigation measures should be considered, including, but not limited to, artificial wetlands, infiltration/sedimentation basins, riparian setbacks, oil/grit separators, wet scrubbing of parking areas with a scrubbing/vacuum machine and proper wash water disposal, or other effective Best Management Practices, where appropriate.
- B.3.b.(23) Evaluate potential flood hazards in an area prior to the approval of future development projects.
- B.3.b.(26) Assure that new development conforms to the adopted programs, recommendations, and plans of the Placer County Flood Control and Water Conservation District.
- IV.C.2.p Protect natural areas along creeks and canals through the use of non-development setbacks which may vary according to the significance of the area to be protected. (Where canals are to be enclosed and/or undergrounded, the water quality shall be considered in determining whether naturalized areas along canals shall be protected.)

Placer County General Plan

The *Placer County General Plan* contains the following goals and policies applicable to hydrology and water quality of the DeWitt Government Center Facility Plan (2003 - 2010) project. These policies are found in the Public Facilities and Services and the Natural Resources sections of the General Plan.

- Goal 4.E** To collect and dispose of stormwater in a manner that least inconveniences the public, reduces potential water-related damage, and enhances the environment.
- 4.E.1 The County shall encourage the use of natural stormwater drainage systems to preserve and enhance natural features.
- 4.E.4 The County shall ensure that new storm drainage systems are designed in conformance with the Placer County Flood Control and Water Conservation District's *Stormwater Management Manual* and the *County Land Development Manual*.
- 4.E.5 The County shall continue to implement and enforce its *Grading Ordinance* and *Flood Damage Prevention Ordinance*.
- 4.E.6 The County shall continue to support the programs and policies of the watershed flood control plans developed by the Flood Control and Water Conservation District.

- 4.E.9 The County shall encourage good soil conservation practices in agricultural and urban areas and carefully examine the impact of proposed urban developments with regard to drainage courses.
- 4.E.10 The County shall strive to improve the quality of runoff from urban and suburban development through use of appropriate and feasible mitigation measures including, but not limited to, artificial wetlands, grassy swales, infiltration/sedimentation basins, riparian setbacks, oil/grit separators, and other best management practices (BMPs).
- 4.E.11 The County shall require new development to adequately mitigate increases in stormwater peak flows and/or volume. Mitigation measures should take into consideration impacts on adjoining lands in the unincorporated area and on properties in jurisdictions within and immediately adjacent to Placer County.
- 4.E.12 The County shall encourage project designs that minimize drainage concentrations and impervious coverage and maintain, to the extent feasible, natural site drainage conditions.
- 4.E.13 The County shall require that new development conform to the applicable programs, policies, recommendations, and plans of the Placer County Flood Control and Water Conservation District.
- 4.E.14 The County shall require projects that have significant impacts on the quantity and quality of surface water runoff to allocate land as necessary for the purpose of detaining post-project flows and/or for the incorporation of mitigation measures for water quality impacts related to urban runoff.
- 4.E.15 The County shall identify and coordinate mitigation measures with responsible agencies for the control of storm sewers, monitoring of discharges, and implementation of measures to control pollutant loads in urban storm water runoff (e.g., California Regional Water Quality Control Board, Placer County Division of Environmental Health, Placer County Department of Public Works, Placer County Flood Control and Water Conservation District.)
- Goal 6.A** To protect and enhance the natural qualities of Placer County's streams, creeks and groundwater.
- 6.A.7 The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.
- 6.A.10 The County shall protect groundwater resources from contamination and further overdraft by pursuing the following efforts:
1. Identifying and controlling sources of potential contamination;
 2. Protecting important groundwater recharge areas;
 3. Encouraging the use of surface water to supply major municipal and industrial consumptive demands;
 4. Encouraging the use of treated wastewater for groundwater recharge; and

5. Supporting major consumptive use of groundwater aquifer(s) in the western part of the county only where it can be demonstrated that this use does not exceed safe yield and is appropriately balanced with surface water supply to the same area.

11.3 IMPACTS

This section discusses and identifies the environmental impacts resulting from the proposed project, and suggests mitigation measures to reduce the level of impact. A detailed discussion of mitigation measures is included in Section 11.4.

Significance Criteria

Based on Appendix G of the CEQA Guidelines, the following significance criteria have been established for evaluating the significance of a project-related hydrology or water quality impact. A hydrology or water quality impact would be significant if any of the following conditions would result from implementation of the proposed project, including demolition, construction and operation phases:

- Violation of any water quality standards or waste discharge requirements;
- Substantial depletion of groundwater supplies or interference with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantial alteration of the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site or substantial increases in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Creation of or contribution to runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Other substantial degradation of water quality;
- Placement of housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Placement within a 100-year flood hazard area of structures that would impede or redirect flood flows;
- Exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Inundation by seiche, tsunami, or mudflow.

Project Impacts

Impacts Determined to be Less than Significant

Alteration of Existing Drainage Patterns. The proposed project would not alter existing drainage patterns. The site is located within two watersheds, the North Ravine and Rock Creek watersheds. Grading activities would not alter the watershed boundaries. Stormwater systems would be designed to preserve existing drainage patterns.

Increase in Runoff Volume Leaving the Project Area. The proposed project would result in an increase in the volume of runoff leaving the project area. Development of roads, buildings, and other paved and impermeable surfaces would reduce the amount of storm water that infiltrates into the ground, and would increase the amount of water that runs off of the project area. Building and facility demolition included in the proposed project would slightly offset the increase in water runoff by removing some existing impervious surfaces. Runoff from the project would be collected, conveyed, and detained in the enlarged detention basin. The project includes expanding the DeWitt Center Detention Basin from approximately 30,000 cubic feet of storage to approximately 110,000 cubic feet of storage. The expansion would occur concurrently with earthwork at the Auburn Justice Center (AJC) site, in proposed project Phase C. This would reduce the peak rate of runoff from the site, but these facilities would not reduce the volume of runoff flowing from the site. The project also includes conveyance of runoff from a portion of the Land Development Building (LDB) site to the DeWitt Center Detention Basin through a buried pipe to avoid drainage impacts within the DeWitt Center Study Area. For the northern 5.2 acres of the LDB site that drain to the Rock Creek watershed a separate detention pond is proposed to be created on the LDB site to control runoff from the site.

Due to the low to moderate permeability of the volcanic rock present at the site, it would not be feasible to provide retention facilities that would allow water to infiltrate into the subsurface and thereby reduce the volume of runoff that would leave the site. According to the *Auburn/Bowman Community Plan*, the project is located where detention, not retention, is recommended. With detention storage, flows would be temporarily stored and then released, while with retention storage flows would be stored but not discharged to a watercourse (i.e., flows would be discharged via percolation to the subsurface or via evaporation). It should be noted that the project is designed so that the peak flow rate impacts would be at a less than significant level. As the *Auburn/Bowman Community Plan* designates the project area as one requiring detention and not retention, and the peak flow rate of runoff is controlled through expansion of the detention basin, the increase in runoff volume leaving the site is considered a less than significant impact.

Loss of Groundwater Recharge Opportunity or Reduced Groundwater Quality. The project is not located in a groundwater recharge area and there are no significant sources of groundwater at the site, therefore, there would be no impact to groundwater recharge or quality due to implementation of the proposed facility plan.

Housing or Structures Placed Within a 100-Year Flood Hazard Area. The project is not located within any portion of a 100-year flood hazard area.

Exposure of People or Structures to Flooding, Including Flooding as a Result of the Failure of a Levee or Dam. The project is not located downstream or in the vicinity of a levee or dam that could fail and result in flooding of the site.

Inundation by Seiche, Tsunami, or Mudflow. The project is geographically removed from the potential for seiche, tsunami or mudflow.

Potentially Significant Impacts

Impact 11.1: Reduced Stormwater Runoff Quality During Construction

Significance Before Mitigation:	Potentially Significant
Mitigation:	11.1a through 11.1f
Significance After Mitigation:	Less than Significant

The grading involved in preparing the LDB and AJC sites for construction would decrease vegetative cover and increase the potential for soil erosion, and thereby could cause an increase in suspended solids in runoff and local receiving waters. Demolition of buildings and structures at the LDB site, between C and D Avenues, and the decommissioned Wastewater Treatment Plant (WWTP) site would also increase the potential for erosion (see *Figure 2-5* for the location of these sites). As part of the proposed facility plan, the County also intends to grade the Children's Emergency Shelter and Women's Center (CES and WC) sites for future development. In addition to impacts from erosion, impacts to runoff water quality during construction could potentially result from leaks or spills of fuel or hydraulic fluid used in construction equipment; outdoor storage of construction materials; or spills of paints, solvents, and other potentially hazardous materials commonly used in construction. Impacts and mitigation measures related to potential releases of hazardous materials are discussed in **CHAPTER 14, HAZARDS AND HAZARDOUS MATERIALS**.

The LDB site is currently occupied by several buildings and temporary structures, which are interspersed with a variety of ornamental trees, shrubs and lawn. All of the buildings would be demolished to accommodate the new LDB and associated parking lot. The entire site would be regraded. A grading plan for the LDB site would be submitted to the Department of Public Works for approval prior to issuance of a grading permit. Temporary and permanent BMPs to avoid and minimize potential stormwater runoff pollution during demolition and construction would be included on the grading plan.

Most of the AJC site is currently vacant and is characterized by a high level of disturbance as a result of previous grading operations in the vicinity. There are a few small parking lots and roadways on the site. Scattered trees exist on portions of the site, and a wetland swale exists in the southern portion of the site, which flows to a culvert passing under the Main Jail facility. The AJC site slopes down gradually from the northeast and would require cut and fill areas to provide level building areas. A grading plan for the AJC site would be submitted to the Department of Public Works for approval prior to issuance of a grading permit. Temporary and permanent BMPs would be included on the grading plan.

The proposed project also includes the demolition of several buildings between C and D Avenues, four buildings north of B Avenue, and the decommissioned WWTP and associated facilities northwest of the Main Jail facility. There would be essentially no regrading at the

building demolition sites. At the WWTP site, the existing facilities would be demolished, but many areas of concrete pads and floors would remain at the site. One-foot diameter holes would be drilled through the remaining concrete to allow some infiltration of stormwater. The WWTP would be graded to promote sheet flow of the water that does not infiltrate towards the west and into the existing sewer pond. A grading plan for the WWTP site would be submitted to the Department of Public Works for approval prior to issuance of a grading permit. Temporary and permanent BMPs to control potential impacts to stormwater quality during and after demolition would be included on the grading plan.

The CES and WC sites are currently undeveloped and covered in vegetation. They are located southwest of the decommissioned WWTP's sewer pond. A grading plan for the CES and WC sites would be submitted to the Department of Public Works for approval prior to issuance of a grading permit. Temporary and permanent BMPs would be included on the grading plan. Once the sites have been graded, the surface would be hydroseeded or covered with vegetation or other protective surface material to minimize the potential for erosion, as required by *Mitigation Measure 11.1a*. For surfaces that are not revegetated, the County would provide other BMPs to minimize discharge of sediments offsite such as filter strips or vegetated swales, as required in *Mitigation Measure 11.1a*. Subsequent project-level environmental reviews of construction plans for both facilities will assess additional hydrologic and water quality impacts of the proposed facilities.

Sediment generated by demolition, grading, or construction activities for the proposed project would be contained on each construction and demolition site and controlled using BMPs. Once each proposed construction project is completed, each site would be covered with asphalt, landscaping, and buildings, so that sediment production would be negligible. Rough grading plans have been prepared for the LDB and the AJC. Cuts and fills at the LDB site are expected to be a maximum of 30 inches, with a total of 5,000 cubic yards of soil moved. Cuts and fills at the AJC site are expected to have a maximum depth of ten feet, with the majority of the cuts and fills being six feet or less with a total of ±12,500 cubic yards of soil moved. Preliminary drainage plans have not been prepared for the proposed construction projects under consideration but will be submitted to the Department of Public Works for approval prior to issuance of a grading permit. Final grading plans will include all proposed grading, drainage improvements, vegetation and tree removal. The County will prepare these plans in accordance with the provisions of the Placer County Grading Ordinance as described in *Mitigation Measures 11.1a* prior to issuance of any grading or demolition permits.

Construction activities involving the disturbance of one or more acres are required to apply for coverage under the State Water Resources Control Board NPDES General Permit for Storm Water Discharges Associated with Construction Activities. To obtain coverage under the permit, the County would submit a Notice of Intent with the required permit fee and prepare a project-specific Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would include the following four major objectives:

1. Identify pollutant sources, including sources of sediment, that may affect the quality of storm water discharges from the construction site;
2. Identify non-storm water discharges;

3. Identify, construct, implement in accordance with a time schedule, and maintain BMPs to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges, from the construction site during construction; and
4. Identify, construct, implement in accordance with a time schedule, and assign maintenance responsibilities for post-construction BMPs, which are those measures to be installed during construction that are intended to reduce or eliminate pollutants after construction is completed.

As described in *Mitigation Measure 11.1c*, the SWPPP would include a project-specific plan for preventing impacts to water quality through the use of structural and/or operational BMPs during construction.

Potential significant impacts to water quality due to construction activities would be mitigated to a less than significant level by preparing final grading plans and landscaping plans for each project site in accordance with the provisions of the Placer County Grading Ordinance and by implementing a SWPPP developed in accordance with the requirements of the NPDES General Permit for Storm Water Discharges Associated with Construction Activities.

Impact 11.2: Increase in Runoff Rate Downstream of the Site

Significance Before Mitigation:	Potentially Significant
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Mitigation:	11.2a and 11.2b
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Significance After Mitigation:	Less than Significant
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The proposed new construction of buildings and parking lots would result in an increase in impervious surfaces within DeWitt Center. To accommodate the increase in runoff resulting from development of the proposed project, specifically the LDB and AJC sites, the existing stormwater detention basin west of the Main Jail would be enlarged and a new detention basin would be created in the northwest corner of the LDB site. The basins and associated conveyance infrastructure would be designed to be in conformance with the applicable programs, policies, recommendations, and plans of the Placer County Flood Control and Water Conservation District, such as the Storm Water Management Manual (SWMM).

The majority of stormwater runoff from the entire DeWitt Center drains to the existing DeWitt Center Detention Basin (built in 2001) west of the Main Jail, north of Atwood Road (see *Figure 11-2*). Water leaving this basin flows to the Atwood Road Detention Pond south of the Main Jail and then through a culvert under Atwood Road to a pond on the south side of Atwood Road (NFA 2002). From there, the stormwater is conveyed via natural drainage features, eventually entering North Ravine.

Currently, runoff from the southern portion of the AJC site, approximately 8 acres, drains through the wetland swale on that site and is conveyed to the Atwood Road Detention Pond through the existing 48-inch culvert under the jail. The Atwood Road Detention Pond also collects runoff from the 9-acre area immediately surrounding this pond. No changes to the location of this runoff are proposed. However, runoff volume from the AJC site is expected to increase following construction of the AJC.

Currently, runoff from approximately 3.5 acres of the LDB site and the northern portion of the AJC site as well as the site of the existing Finance Administration Building is collected in a ditch that bypasses the wetland swale on the southern portion of the AJC site. This ditch conveys the runoff to a 42-inch culvert that empties into the DeWitt Center Detention Basin. The proposed project includes provision of a new underground storm drain system to replace the existing ditch for conveyance of post-project runoff volumes.

Approximately 5.2 acres of the 8.8-acre LDB site currently drains towards the north and is part of the Rock Creek drainage area. The proposed LDB project includes creation of a new detention pond in the northwest corner of the LDB site to accommodate the increase in runoff volume to this watershed. The onsite storm drain systems would include catchment basins in the parking lots.

County staff has prepared a preliminary estimate (Appendix F of this EIR) of the amount of additional storage that would be required at the DeWitt Center Detention Basin to accommodate runoff from the AJC and LDB sites (Department of Facility Services [DFS] 2003). Based on the results of the calculations, the DeWitt Center Detention Basin, which currently provides approximately 30,000 cubic feet of storage capacity, would be enlarged to provide approximately 110,000 cubic feet of storage capacity to accommodate the runoff from a 100-year storm event. The existing 12-inch-diameter outlet pipe would be shortened as the pond is enlarged and a new outlet structure would be designed to adequately control the flows for all storm events (2-year through 100-year) to less than pre-development flows consistent with Placer County's SWMM. The soil excavated from the Detention Basin (approximately 80,000 cubic feet) would be deposited throughout DeWitt Center, in part as fill for permitted fills of wetlands, as discussed in **CHAPTER 9, BIOLOGICAL RESOURCES**, and in part as fill/topsoil for the proposed demolition sites. Identification of fill amounts and placement for the soil removed from the detention basin site would be included on the grading plans for the detention basin work which would be submitted to the Department of Public Works for review and approval prior to issuance of a grading permit, as required by *Mitigation Measure 10.3d*, which is incorporated in this chapter by reference in *Mitigation Measure 11.2a*.

The new basin on the LDB site would consist of two 4-foot deep depressions connected by an 18-inch diameter pipe. The proposed basin configuration would provide clearance for an existing joint utility trench that passes through the proposed basin area. Based on preliminary estimates by County staff, the new basin would provide approximately 13,000 cubic feet of storage capacity to accommodate the runoff from a 100-year storm event. The pond outlet control structure would connect to an existing 18-inch diameter storm drain near the intersection of Bell Road and Richardson Road. The outlet control structure would have a 12-inch diameter outlet pipe and would be designed to control discharges in accordance with Placer County's SWMM (i.e., discharge would be less than pre-development flows).

AR Associates prepared an analysis of the pre-project and post-project peak stormwater runoff flows using the HEC-1 computer program based on the conceptual development plans and the County staff estimations of the amount of expansion of the DeWitt Center Detention Basin. The results of the modeling are as shown in *Table 11.2* below. This analysis found that the expansion of the DeWitt Center Detention Basin would reduce peak flows of stormwater runoff resulting from the proposed project to levels at or below the pre-project conditions and would lower the

elevation of water surface in the Atwood Road Detention Pond during the 100-year storm event by 0.1 foot. This would not eliminate the overtopping of Atwood Road during a 100-year storm event, but would slightly lessen the amount of flooding that currently would be expected to occur. The results also indicate that the new detention basin on the LDB site would reduce peak flows from the proposed project to levels below pre-project conditions.

Table 11.2

Summary of Peak Flows and Maximum Water Surface Elevation for Pre- and Post-Development Conditions

Development Comments										
	Peak Flows (cubic feet per second)								Maximum Water Surface Elevation (feet)	
Location	100-Year		25-Year		10-Year		2-Year		Pre Q100	Post Q100
	Pre	Post	Pre	Post	Pre	Post	Pre	Post		
Dewitt Center Detention Basin System										
A1	129	134	96	11	72	76	35	37		
DeWitt Center Detention Basin	109	79	84	62	67	50	35	25		1396.96
A2	15	23	11	17	8	13	4	7		
A3	34	40	25	30	19	22	9	11		
COMB	138	105	105	82	83	64	43	32		
Atwood Road Detention Pond	98	77	53	51	46	43	28	26	1390.98	1390.88
Land Development Building Basin										
B1	12	6	8	5	64	4	3	2	N/A	1428.63

Notes:

The location abbreviations indicate the subbasins as marked on Figure 11-2.

A1 is the 45 acre area that includes the southern portion of the LDB site and the northern portion of the AJC site. A1 also includes the 3-acre area immediately surrounding the DeWitt Center Detention Basin.

A2 is the 8-acre subbasin in the southern portion of the AJC site. That drainage would be conveyed through the existing 48 inch culvert under the Main Jail to the Atwood Road Detention Pond.

A3 is the 9-acre subbasin surrounding the Atwood Road Detention Pond.

COMB represents the inflow into the Atwood Road Detention Pond and is the combination of basins A2 and A3 plus the routed outflow of basin A1 through the DeWitt Center Detention Basin.

B1 is the northern 5.2 acres of the LDB site. The post development values represent the outflows and water surface elevations for the new detention basin.

Source: AR Associates 2003

Demolition of the buildings between C and D Avenues and north of B Avenue and the decommissioned WWTP facility would remove impervious surfaces and therefore result in decreasing peak runoff from these sites. The preliminary drainage calculations performed for enlarging the DeWitt Center Detention Basin did not account for these decreased flow rates. However, these decreases would not be sufficient to significantly reduce the need for additional storage at the expanded detention basin.

During design, the County would be required to prepare and submit drainage analyses and plans for all of the proposed sites in accordance with the SWMM as described in *Mitigation Measure 11.2b*. To accommodate the increased flow rates from the LDB and AJC sites, the existing DeWitt Center Detention Basin would be enlarged and a new detention basin would be created on the LDB site. Because both of these basins would be designed in accordance with the SWMM that requires post development flows to be less than pre-project flows, impacts from the proposed project are considered less than significant. With respect to the CES and WC sites, the County plans to do the rough site grading and provide infrastructure (i.e., roadway, water and sewer lines). However, the facilities would be designed and constructed in the future. As such, the potential impacts due to the development of the CES and WC projects can only be assessed at the programmatic level at this time, with more thorough review of the impacts to be done in the future.

Currently the CES and WC sites are vacant land, but once developed would be covered with buildings and parking lots. Similar to the LDB and AJC sites, the development of the CES and WC sites would increase the amount of impervious area and increase peak runoff rates. Drainage analyses for these sites have not been completed, but would be required in order to assess potential impacts. Because there would be an increase in impermeable surfaces and an increase in runoff rate, stormwater detention designed in accordance with the Placer County SWMM would be required as mitigation and the impacts would be expected to be less than significant.

Impact 11.3: Reduced Storm Water Quality During Operations

Significance Before Mitigation:	Potentially Significant
Mitigation:	11.3a
Significance After Mitigation:	Less than Significant

Development has the potential to create adverse impacts on the water quality of streams. Potential impacts from urban and commercial land uses include increased hydrocarbon levels from increased automobile traffic, increased nutrients from landscaping activities, and increases in other pollutants associated with urban runoff.

As part of EPA's National Pollutant Discharge Elimination System (NPDES) storm water program, EPA recently established the Storm Water Phase II Rule for municipalities with populations of less than 100,000 to develop storm water management programs as a means to control polluted discharges. In April 2003, the State Water Resources Control Board adopted a General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer Systems (MS4s) to provide NPDES permit coverage for smaller municipalities. Placer County is designated within this NPDES Phase II General Permit and is preparing a stormwater management program in accordance with the requirements of the NPDES II permit. Under the Phase II Rule, stormwater management programs are to be developed that will reduce the discharge of pollutants to the "maximum extent practicable" (MEP), protect water quality, and satisfy the appropriate water quality requirements of the Clean Water Act. The stormwater management program consists of six elements that, when implemented in concert, are expected to result in significant reductions of pollutants discharged into receiving waterbodies. These six elements are: 1) public education and outreach, 2) public participation and involvement, 3) illicit

discharge detection and elimination, 4) construction site runoff control, 5) post-construction runoff control and 6) pollution prevention and good housekeeping.

In accordance with NPDES II requirements, project designs will be required to incorporate BMPs as described in *Mitigation Measure 11.3a* to reduce the discharge of stormwater pollution to the MEP. Potential significant impacts to water quality during operations would be mitigated to a less than significant level by designing the project to include appropriate and effective BMPs.

11.4 MITIGATION MEASURES

Reduced Storm Water Quality During Construction

Mitigation Measure 11.1a: Implement *Mitigation Measure 10.1a*, which requires indication on Grading Plans for each project site of the extent of proposed grading, drainage improvements, and vegetation removal.

Mitigation Measure 11.1b: Implement *Mitigation Measure 5.2a*, which requires revegetation and/or covering of demolition sites to minimize erosion.

Mitigation Measure 11.1c: Implement *Mitigation Measure 7.1a*, which requires the submittal of a Construction Emission/Dust and Erosion Control Plan that includes specific Best Management Practices.

Mitigation Measure 11.1d: Implement *Mitigation Measure 9.3c*, which requires additional Best Management Practices to control erosion and sedimentation of onsite drainageways.

Mitigation Measure 11.1e: Implement *Mitigation Measure 10.1f*, which requires implementation of additional Best Management Practices.

Mitigation Measure 11.1f: The County shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) for every construction phase. The SWPPP will include development of site-specific structural and operational BMPs to prevent and control impacts to runoff quality, measures to be implemented before each storm event, inspection and maintenance of BMPs, and monitoring of runoff quality by visual and/or analytical means. The Regional Water Quality Control Board will issue Waste Discharge Requirements (WDRs) which set forth conditions, discharge limitations, and monitoring and inspection requirements with which the County will comply. Several BMPs that could be used during construction are described in the *Auburn/Bowman Community Plan*, Appendix D, Hydrology Study. (The contents of the SWPPP are set forth in detail in the permit application package, Montgomery 1992). The California Stormwater BMP Handbook for Construction (California Stormwater Quality Association, 2003a) also provides example of BMPs that could be used. BMPs that may be included in the SWPPP are:

- a. Scheduling materials deliveries to provide for minimal onsite storage and/or providing covered storage for materials wherever practical;

- b. Designating specific areas for overnight equipment storage and maintenance and providing runoff control around those areas to minimize the potential for runoff to contact spilled materials;
- c. Establishing procedures for daily work site cleanup and prepare and implement a Spill Mitigation Plan for construction-related activities (*a portion of this measure is also listed as Mitigation Measure 14.1b*);
- d. Developing a program of site inspections to ensure that BMPs are consistently implemented and effective;
- e. Conducting visual monitoring of runoff quality at selected monitoring points;
- f. Placing fiber rolls (wattles) around drain inlets to prevent sediment and construction-related debris from entering the inlets;
- g. Placing fiber rolls (wattles) along the perimeter of the site to reduce runoff flow velocities and prevent sediment from leaving the site;
- h. Placing silt fences downgradient of disturbed areas to slow down runoff and retain sediment;
- i. Placing sandbags around potentially affected off-site inlets to prevent sediments from entering the inlets; and
- j. Specifying that all disturbed soil will be seeded, mulched, or otherwise protected by October 15.

Increase in Runoff Rate Downstream of the Site

Mitigation Measure 11.2a: The County shall implement *Mitigation Measure 10.3d*, which requires that the grading plan for the Auburn Justice Center site and DeWitt Center Detention Basin expansion shall include prescriptive practices for placement of all of cut soil not used as fill within the same project site.

Mitigation Measure 11.2b: The County shall comply with Placer County Flood Control and Water Conservation District's *Stormwater Management Manual* (SWMM) and the *County Land Development Manual* for all design and construction of storm drainage systems. The SWMM provides policy, guidelines, and specific criteria for the development and management of stormwater facilities and infrastructure. The following are some of the requirements that would be applicable to the drainage studies for the proposed project.

- a. Avoid increasing the storm drainage problems in the area, or transferring drainage problems from one location to another. Watershed boundaries should not be altered, and flows should not be diverted from one watershed to another without compelling reasons.
- b. Design the stormwater system such that no damages occur to structures or improvements during the 100-year event and no inundation of private property occurs during the 10-year event. The 10-year event is the minimum design storm for new developments and all dedicated drainage facilities will be sized for this event.

- c. Design the stormwater system such that the peak flows will be reduced to below pre-project conditions for 2-year through 100-year storm events.
- d. Prepare hydrologic analysis in accordance with the guidelines provided in the SWMM. For example, SWMM recommends that the computer program HEC-1 be used to compute both the peak flow and runoff volume for the various storm events, as well as route the design storms through the proposed detention facility, to evaluate the effectiveness of the project.
- e. Provide details (e.g. location and typical details) on how stormwater runoff is collected and conveyed to the stormwater system.
- f. Provide drainage facilities that minimize drainage concentration.
- g. Provide energy dissipators at all points where drainage becomes concentrated.
- h. Prepare a Drainage Plan for each site and submit to the Placer County Flood Control and Water Conservation District for review and approval. The SWMM provides a detailed list of the information that should be included in the Preliminary and Final Drainage Plans.

The County will prepare a drainage study that addresses each of the proposed project sites in accordance with the Placer County Flood Control and Water Conservation District's (SWMM). Compliance with Placer County's design manuals for storm drainage systems will ensure that post-project peak flow rates will be less than pre-project peak flow rates and therefore, impacts to downstream areas will be minimized.

Reduce Storm Water Quality during Operations

Mitigation Measure 11.3a: The County will prepare and implement a post-development Stormwater Management Plan (SWMP) under the guidelines established by the Placer County Flood Control and Water Conservation District's Stormwater Management Manual (SWMM) and in accordance with the NPDES Phase II Rule. The components of the SWMP will include protection from flooding, protection and enhancement of the stream environment, prevention of erosion and adverse effects on water quality, incorporation of regional stormwater management goals, creation of multiple resource use, and assurance of the growth and development of the project to minimize its adverse impacts. BMPs will be included in the plan, as well as a mitigation monitoring program to ensure long-term success of the BMPs. The California Stormwater BMP Handbook for New Development and Redevelopment (California Stormwater Quality Association, 2003b) provides guidance for selecting and implementing BMPs, as well as information on the potential effectiveness of BMPs on pollutant control. Examples of BMPs that could be incorporated into the SWMP include the following.

- a. Litter control and solid waste management,
- b. Street cleaning,
- c. Design parking lots to direct stormwater to storm drain inlets and away from garbage disposal areas,

- d. Incorporate landscaping into the design,
- e. Prevent contact of stormwater with potentially contaminated facilities either by redirecting flows or providing other protection, and
- f. Develop and implement a maintenance program for the storm drain system and stormwater detention basins.

The purpose of this mitigation measure is to provide a plan for ensuring that structural BMPs constructed as part of the proposed project are maintained appropriately such that they continue to perform their intended function as long as the project site is occupied. Placer County is operating under a new NPDES Phase II Rule permit that addresses stormwater discharges in the county. The SWMP will address site-specific drainage characteristics, stormwater conveyance systems, discharge points, potential sources of runoff quality impacts, specific structural BMPs that have been constructed as part of the project, recommended operational BMPs, a maintenance program for structural BMPs, a monitoring program designed to evaluate the need for BMP modifications or additional BMPs, and identification of specific parties responsible for implementing each part of the plan. Specific BMPs will be developed based upon the Placer County SWMM, requirements of the Placer County General Plan, and State Water Resources Control Board general guidelines for development of BMPs. Due to the low permeability of the soils at the site, BMPs that rely on infiltration (i.e., porous pavement, infiltration trenches, infiltration basins) would not be appropriate for the project area (Montgomery 1992a).

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